**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The community does not have a sludge disposal facility. Sewer sludge pumped from the community septic tanks is disposed of in non-permitted facilities as needed which poses a public health risk to the community.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Construction of a sludge lagoon facility with a primary lined cell that overflows into a secondary percolation cell. The facility will be fenced, secured from intruders and wildlife, and located away from the community at a site to be shared with a proposed new landfill facility.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 1 | Ac. | C |
| Sewer, Other - Road, sewer other | IHS Regular | 500 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,112,500.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** The existing water distribution system consists of 2-inch, 3-inch, & 4-inch PVC and PE water main installed between 1964 and 1980. The water main system regularly leaks and the village repairs an average of 4-5 main breaks per year. A 50,000-gallon wood-stave tank installed in 1979, and still online, leaks treated water from its base and piping connecting it to the distribution system. The leakage volume varies and is believed to approach approximately 15% of the system daily flow. The homes located at high elevations or the extreme ends of the system regularly experience low pressure.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Construction plan set and specifications have been completed for this project and the SOW divided into two phases. Phase 1 of this project will install approximately 4,900 LF of new, 6-inch, HDPE, arctic pipe, water main; 1,500 LF of new 1-inch, HDPE water service line; 28 new 6-inch isolation valves; and seven (7) new 6-inch flush hydrants. The new water main will be installed in the southern half of the village, South of Fireweed Street. New system will loop the distribution mains, replace leaking PVC main, replace undersized PVC main, abandon leaking wood-stave tank and piping, and improve water pressures in the high homes and at ends of the system.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 4829 | Ft. | C |
| WATER DISTRIBUTION - Service lines, direct bury, water distribution | IHS Regular | 1468 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,364,480.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The existing water distribution system consists of 2-inch and 4-inch PVC and PE water main installed between 1964 and 1980. The water main system regularly leaks and the village repairs an average of 4-5 main breaks per year. The homes located at high elevations or the extreme ends of the system regularly experience low pressure.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Construction plan set and specifications have been completed for this project and the SOW divided into two phases. Phase 2 of this project will install approximately 4,900 LF of new, 6-inch, HDPE, arctic pipe, water main; 2,400LF of new 1-inch, HDPE water service line; 20 new 6-inch isolation valves; and five (5) new 6-inch flush hydrants. The new water main will be installed in the northern half of the village, North of Fireweed Street. New system will loop the distribution mains, replace leaking PVC main, replace undersized PVC main, and improve water pressures in the high homes and at ends of the system.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 4853 | Ft. | C |
| WATER DISTRIBUTION - Service lines, direct bury, water distribution | IHS Regular | 2292 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,534,130.00**

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**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Existing disposal site is located on site with limited expansion options and is nearing or at design capacity. Kenai Borough operates the facility and must barge in equipment at least once a year to no perform regular maintenance. Recent IHS visit observed equipment in disrepair, inability to cover and compact waste, no waste segregation possible due to limited space and capacity, adjacent residential homes within 150-feet of burn-box, no signage, no controlled access or locking gate, a small stream flowing through the site toward the beach, and a significant birds and animal presence in the landfill.

**O & M:** No collection system.

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Review SW management plan, develop recycle and hazmat trans-shipment program to minimize waste generation. Construct a 500 LF gravel road from an existing timber road to a proposed landfill/sludge lagoon site. Construct a landfill facility with a 20-year design life that incorporates waste segregation, recycling, a burn box, and traditional burial and cover.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 1 | Ac. | D |
| Solid Waste C (Development) - Road, solid waste | IHS Regular | 500 | Ft. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,150,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** There are two existing water plants in Napakiak. The community would like to reduce operating costs and have the system upgraded at the washeteria plant and abandon the older water treatment plant that is over 30 years old.

**Sewer:** None

**Solid Waste:** None

**O & M:** There are higher energy and maintenance costs for sustaining two water plants as opposed to operating one facility.

**PROPOSED FACILITIES:**

**Water:** Design and construction costs to consolidate the two water plants into one upgraded facility. A new foundation pad and structure has already been moved adjacent to the washeteria to increase the water storage capacity there. The water quality at the present washeteria facility well is better and would require less treatment than the older existing watering point /WTP. This would consist of decommissioning the older plant and provide structural improvements and new interior treatment components to the treatment facility at the washeteria.

**Sewer:** None

**Solid Waste:** None

**O & M:** Once upgraded,the improved consolidated facility will provide water more efficiently than the old watering point/WTP.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Treatment plant, rehabilitation, water treatment | IHS Regular | 1 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $850,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** AVCP constructing 4 homes. By 2011 they will all be occupied, with no indoor sanitation facilities (water haul; honeybucket). Boardwalk driveways are not accessible to the haul vehicle. ??? Need storage tanks. Six homes existing homes served in 2000 with a pilot system need service at the new standard. These six homes do not have adequate driveway accesses (boardwalks) to allow village water haul vehicles to service home water storage tanks. Existing equipment used by the village to pull the water haul trailers (all terrain vehicle in the summer and a snow machine in the winter) is old and inadequate. The existing well/watering point that services the village is not operating at full capacity or efficiency.

**Sewer:** Four homes in constructino will have no sewer service. Six homes with the old style "first generation" sewage holding tanks initially installed need to be replaced/upgraded with current models which correct problems with the old technology and provide adequate service. These six homes do not have adequate driveway accesses (boardwalks) to allow village sewage haul vehicles to service home sewage holding tanks. Existing equipment used by the village to pull the sewer haul trailers (all terrain vehicle in the summer and snow machine in the winter) is old and inadequate. Currently there are no adequate honey bucket "hoppers" to act as emergency collection points by the village for periods when home systems suffer breakdowns or freeze-ups – the existing hoppers are old, damaged, and unserviceable.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** New water storage and pressurized in-house plumbing for 4 Flush Tank and haul units, including service accesses. Closed system that includes water plumbing to kitchen and bathroom that will help provide a constant 100 gallon supply. Six homes supplied with first generation equipment and accessories will be upgraded to current levels of service. Boardwalk at home for water vehicle access. ATV and Snow Machine for delivery. An assessment will be carried out to identify improvements to the existing physical infrastructure and operation/administration of the water service to improve its capacity and efficiency. Synergy with other funded projects – Most of the city is serviced by a city haul system that is compatible with the proposed facilities.

**Sewer:** New sewage collection, storage, and in-house plumbing, including service accesses for four Flush Tank and Haul® units. Boardwalk driveway accesses will provide for efficient water service delivery. The closed system includes a sewage holding tank outside the house, sewage plumbing in the home to the kitchen and bathroom, and a flush toilet that will help insure that cross contamination risk is eliminated and will provide sewage handling by trained village workers. Six sewage holding tanks initially installed will be replaced with current models which correct problems with the old technology, along with boardwalk access drives. An all terrain vehicle and snow machine will be purchased to effectively and efficiently pull the sewage haul trailer to evacuate the sewage holding tanks of the homes. Two new hoppers, to be

used as emergency back-up, will be provided. Synergy with other funded projects – Most of the village is serviced by a city haul system that is compatible with the proposed facilities.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 4 | Ea. | A |
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 4 | Ea. | A |
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 6 | Ea. | D |
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 6 | Ea. | D |
| WATER DISTRIBUTION - Haul vehicle, water distribution | IHS Regular | 2 | Ea. | D |
| SEWER COLLECTION - Haul vehicle, sewer collection | IHS Regular | 2 | Ea. | D |
| Water, Other - Boardwalk, water other | IHS Regular | 300 | Ft. | D |
| Sewer, Other - Boardwalk, sewer other | IHS Regular | 300 | Ft. | D |
| SEWER COLLECTION - Honeybucket haul stations, sewer collection | IHS Regular | 2 | Ea. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $697,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** The landfill is currently un-permitted and the facility's capacity has been exceeded and is overflowing its boundaries, even the access boardwalk is laiden with waste. A PER/ER for a new landfill is going to be completed in June 2014 and available for the community to use in seeking funding. In the meantime, a community collection system would greatly reduce the amount of waste strewn along the boardwalks on the path to the landfill.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** For the short term, collection trailers for a community haul system would greatly reduce the unsanitary conditions the full landfill is creating. Funding for a new landfill would have to include a wildlife study to meet FAA requirements for the site options within the one mile radius of the airport. Design fees would also be required in addition to construction funds.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste A (Plan) - Professional Services (engineering) | IHS Regular | 1 | Ls. | D |
| Solid Waste B (Closure) - Closure, solid waste site | IHS Regular | 2 | Ac. | D |
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 4 | Ac. | D |
| Solid Waste C (Development) - Equipment, solid waste | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,218,081.00**

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**EXISTING DEFICIENCIES:**

**Water:** The center support of the 600,000 gallon water storage tank has failed causing the roof to collapse.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Construct a new 200,000 gallon water storage tank to replace the old tank.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 210000 | Gal. | D |
| WATER DISTRIBUTION - Foundation - conventional, local gravel, water distribution | IHS Regular | 1600 | Sf. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,066,000.00**

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**DRAFT**

## EXISTING DEFICIENCIES:

**Water:** None

**Sewer:** All homes (29) and the school are on individual septic systems. A 1500 gallon, 4 x4 truck mounted, sludge pumper is needed to pump out the septic tanks and haul septage to the existing disposal site.

**Solid Waste:** None

**O & M:** None

## PROPOSED FACILITIES:

**Water:** None

**Sewer:** Provide a 1500 gallon, 4 x 4 truck mounted, sludge pumper.

**Solid Waste:** None

**O & M:** None

## CIP Details:

**Related Projects:** The proposed sludge pumper truck is critical equipment needed to properly operate the community sewer system septic tanks that were built under past projects.

**Ongoing Funding:** Project No. 06-RE5 is funded through the VSW/RD program to design and consctruct upgrades to the water intake system. Design is scheduled to be completed during 2008.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Septic tank pumper, sewer treatment | IHS Regular | 1 | Ea. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $250,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** The existing dilapidated water treatment plant was constructed in 1977. The water plant is in dire need of a complete upgrade since the facility is over 36 years old. The equipment is beyond worn out, extremely corroded, and should be upgraded with modern, clean equipment (see attached pictures showing extensive filter and piping corrosion and mold and unsanitary staining on the walls and piping). The water plant contains several electrical code violations and mold issues. Expansion of the system to new services has approximately doubled the demand on the treatment plant. The plant has reached maximum capacity. The treatment system is operated 24 hours a day either in the production or backwash mode. During periods of high usage, the plant cannot meet the demands of the users. Automatic backwash controls are not operable. Primary filter media has caked and cannot be backwashed. The system is operating on a single filter. No air scour mechanism was included in the original design. Backwash system is not capable of adequately cleaning the filters. In order to maintain water quality, filters must be backwashed manually after every 4 hours of run time. Existing pressure system pumps are no longer able to provide continous service.

**Sewer:**

**Solid Waste:**

**O & M:**

**PROPOSED FACILITIES:**

**Water:** Complete a major upgrade of the existing water treatment plant. Upgrade all water treatment plant equipment, piping, pumps, and electrical controls to provide a complete water plant. Intall nanofiltration or reverse osmosis equipment as well as new greensand filters to provide a blended potable water product. Provide addtional treatment capacity in the plant in order to meet current demands. This will be accomplished by adding additional filters or by replacing the existing units with larger capacity units. The new treatment system will include an air scour function in the backwash system. Replace the existing pressure pumps with new higher pressure and capacity pumps. Update the electrical system and all electrical controls. Completely renovate the walls, etc. to remove any mold growths.

**Sewer:**

**Solid Waste:**

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Treatment plant, rehabilitation, water treatment | IHS Regular | 1 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $4,890,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Nenana landfill was closed in the 1990's. The community is divided evenly between the residential services provided by Lausen's Dependable Service, self-haul to the Denali Borough Landfill near Anderson, and self-haul to a North Star Borough Transfer Station. If residents self-haul they must travel between 28-45 miles to reach either of the above mentioned transfer stations. The distance has proved to be a burden to residents and has resulted in unauthorized and unpermitted dumping. The community has selected a self-haul to a conventional transfer station with waste reduction as their preferred alternative. Please see the attached Conclusions and Recommendation section from the Nenana Solid Waste Management Plan (October 2006).

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Construct local transfer station. Station will include a drive through dumping platform, a compactor, 40 cubic yard trash containers, an operator shed, fencing, storage racks and containers for hazardous and recyclable materials, and other appurtenant facilities. Community will contract with local vendor to have full containers transported and emptied at the existing borough landfill. Nenana barge lines operate a free backhaul service to interior communities on its barging routes. Batteries and recyclable materials are backhauled to Nenana at no cost to the communities. These items are consolidated and shipped to Anchorage. The proposed transfer station will include facilities for efficient consolidation and storage of materials backhauled to Nenana as part of the service.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - General estimate, solid waste | IHS Regular | 1 | Ls. | D |
| Solid Waste C (Development) - General estimate, solid waste | Other | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $290,667.00**

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**DRAFT**

## EXISTING DEFICIENCIES:

**Water:** The existing water treatment plant has exceeded it's design life and needs to be replaced. It is 28 years old. The concrete foundation has settled unevenly (over 10" in places) within the concrete stem walls. The pipes have corroded, shifted and broken in many places. Both boilers are not working properly and inadequate heat is supplied to the water. One boiler is always down for repair. The pressure pumps can not provide enough pressure to serve the new homes that are built within the community. The ground water is corrosive and is leading to lead and copper problems within the distribution system. There were 11 homes identified in the Corrosion Study that have high levels of lead or copper. Installing corrosion treatment in the new water treatment plant will be required to prevent the water system from leaching lead and copper from the plumbing in some of the homes. There are also high iron and manganese levels in the water. The existing building is undersized and there is not enough room to maintain storage of laboratory equipment and office supplies. The lab sink and counter have been partially dismantled and are no longer functional. The storage and use of calcium hypochlorite for water disinfection has caused massive corrosion within the plant. Also during the design process it was discovered that a 15,000 gallon water storage tank to backwash the filters will be required inside the building as there is inadequate flow and pressure from the new water storage tank for the backwash procedure. The design of the new water treatment plant is at 90% and a revised cost estimate has been completed. The design is on hold until funding for the plant can be obtained.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

## PROPOSED FACILITIES:

**Water:** A new water treatment plant will need to be built. A potential site across the street from the old plant has been identified. The building will have a concrete foundation and will be built with 2x8 lumber for extra strength and better insulation of the structure. It will have a steel roof and metal siding. The building will be large enough to contain the treatment system as well as a small office space, laboratory space, work space, and bathroom. There will be an arctic entry large enough to contain tools and O&M supplies. The treatment system will consist of dual multimedia filters with polymer addition, soda ash to neutralize the pH, and a separate chlorine treatment room. The soda ash injection treatment will be required to address the corrosivity of the ground water. There will be a boiler room to house two boilers. There will also be two pressure boosting and circulating pumps installed. There will be a small water storage tank inside the plant to backwash the pressure multimedia filters. Because of the treatment scenarious and that this system is a heated, buried, arctic, circulating system, this plant is a bit more complicated than others.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** There is a BIA road project to the community landfill,as well as other ongoing roadwork.

**Ongoing Funding:** A section of sewer main including manholes is being replaced. There is a BIA funded road project to repair the road to the solid waste facility. There is a new sewer lift station funded to replace the lift station in New Stuyahok.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Treatment plant, new, no foundation, water treatment | IHS Regular | 1800 | Sf. | C |
| WATER TREATMENT - Foundation - concrete foundation | IHS Regular | 1800 | Sf. | C |
| Water, Other - Professional Services (engineering) | VSW/EPA | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $4,195,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The existing ground water well is high in iron and manganses and does not provide an adequate amount of water for the community. 2 of the older wells have been abandoned due to production issues and being shut down by DEC for separation distance issues. There were three existing wells in New Stuyahok. One well was decommissioned due to a separation distance issue to a nearby sewer manhole and one well was abandoned due to a loss of water production. This left one well to produce all the water for the community. This well started out with a production rate of 43 gpm and has since declined to about 28gpm. The community requires approximately 45-50gpm.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Install a new community well and connect to the water treatment plant.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER SOURCE - Ground water well, water source | IHS Regular | 1 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $350,000.00**

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**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** The existing groundwater treatment plant is over 30 years old and at the end of it's useful life. Although capable of meeting current water quality standards, the plant suffers from extreme deterioration which precludes safe and normal operation and maintenance on the piping and components. The structure has significant energy deficiencies which cause increased O&M costs. The small community water storage tank, located inside the plant will also need to be replaced.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Replace the water treatment plant with a new structure and interior components. Provide a highly energy efficient building envelope. Install a new water storage tank outside the facility.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:** There is a new lift station project scheduled for Newhalen in 2014 (PER and design) and 2015 (construction).

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Foundation - concrete foundation | IHS Regular | 1200 | Sf. | C |
| WATER TREATMENT - Treatment plant, new, no foundation, water treatment | IHS Regular | 1200 | Sf. | C |
| Water, Other - Professional Services (engineering) | IHS Regular | 1 | Ls. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,700,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The existing sewer collection system is subject to significant inflow and infiltration during periods of seasonal high ground water and during storm events which has overloaded the lift station causing homes at the lower portion of the system to back up. The existing sewer collection system is comprised of arctic type manholes which have been subject to frost jacking which has compromised the ability of the system to resist I&I. With the lift station unable to keep up with the excessive flow, the community septic tanks have been loaded to the point of surcharge. The existing lagoon is undersized given the population served. The primary cell size will have to be increased to accept projected future sludge volumes to extend the life of the facility.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** This project proposes to install 4,000 linear feet of HDPE gravity sewer collection lines with concrete manholes. Of the 4000 ft, 2000 ft of old sewer main will be replaced and 2000 ft of new sewer main will be installed to serve the western HUD housing development. 28 sewer services will be replaced under this project. The community sewer lagoon will be expanded an additional 2 acres to accommodate the existing population and the new users from the old HUD subdivision.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 4000 | Ft. | C |
| SEWER COLLECTION - Service lines, direct bury, sewer collection | IHS Regular | 2800 | Ft. | C |
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 2 | Ac. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $4,080,000.00**

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**EXISTING DEFICIENCIES:**

**Water:** None
**Sewer:** None
**Solid Waste:** None
**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None
**Sewer:** None
**Solid Waste:** None
**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 2000 | Ft. | A |
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 2000 | Ft. | A |
| Sewer, Other - Professional Services (engineering) | IHS Regular | 1 | Ls. | A |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,315,000.00**

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**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:** The WTP does not meet the requirements of the SWTR. The five 20,000-gal insulated water storage tanks delivered to the WTP in Winter 2011/12 need to be plumbed into the water treatment plant. Washeteria not usable in the winter.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Improvements to improve water quality. Scope will not meet the SWTR. Repairs to the building itself will improve safety, security, energy efficiency and ease of operation. Adjustments to washeteria drain line will allow for use in the winter. Connect new WSTs to WTP.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** None.

**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Treatment plant, rehabilitation, water treatment | IHS Regular | 1 | Ea. | D |
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 1 | Gal. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $595,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** First 25 "pioneer homes" moving to Mertarvik will need water service

**Sewer:** First 25 "pioneer homes" moving to Mertarvik will need sewer service

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Construct a watering point will distribute water from a well drilled in Summer 2011.

**Sewer:** Construct septic tanks and drainfields will be constructed at each home

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** The Mertarvik Evacuation Center will be completed in Summer 2012, possibly spilling over into 2013. The MEC would use the same well as the proposed watering point.

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Water, Other - Other water | IHS Regular | 1 | Ls. | A |
| SEWER TREATMENT - Septic tank/drainfield, individual, sewer treatment | IHS Regular | 25 | Ea. | A |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,750,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Newtok's existing unpermitted dump will need to be closed when the village moves to Mertarvik.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Close existing landfill at Newtok.

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste B (Closure) - Closure, solid waste site | IHS Regular | 1 | Ac. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $134,377.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** Existing flush and haul sewage lagoon overflows regularly into neighboring tundra. The community has no washeteria. A washeteria would require a lagoon upgrade, a forcemain and lift station. The school uses an undersized pond. The community has a haul system, but the distance to the lagoon is too far. The lagoon is not permitted.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Expand existing tundra pond sewage into a two cell sewage treatment lagoon. Upgrade the existing lagoon access road. This will allow the community to have a washeteria, dispose of the school waste properly. This will be a permitted lagoon.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 4 | Ac. | B |
| Sewer, Other - Road, sewer other | IHS Regular | 2625 | Ft. | B |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,467,500.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None.

**Sewer:** The community has no washeteria. A washeteria would require a lagoon upgrade, a forcemain and lift station. The school uses an undersized pond. The community has a haul system, but the distance to the lagoon is too far so they need a dump station at the lift station.

**Solid Waste:** None.

**O & M:** None.

**PROPOSED FACILITIES:**

**Water:** None.

**Sewer:** A lift station with a dump station for hauled wastewater and forcemain from WTP to lagoon would provide the infrastructure for a washeteria, reduce the cost of hauling waste by Honda ATV to the lagoon, and allow the school to put their waste in an approved lagoon instead of an undersized pond.

**Solid Waste:** None.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Force mains, above ground, sewer collection | IHS Regular | 2500 | Ft. | B |
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 1 | Ea. | B |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,270,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** There is no washeteria. Residents self-haul water and have flush and haul systems for sewage.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Build a new washeteria. Connect school to city water system to provide a source of revenue to the city.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Water, Other - Foundation - conventional, local gravel, water other | IHS Regular | 1920 | Sf. | C |
| Water, Other - Washeteria, water portion, no foundation, water other | IHS Regular | 1920 | Sf. | C |
| WATER DISTRIBUTION - Mains, above ground, water distribution | IHS Regular | 775 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,705,250.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Unpermitted dump site.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Plan, design and construct new solid waste disposal site. Close old dump site.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste B (Closure) - Closure, solid waste site | IHS Regular | 3 | Ac. | C |
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 5 | Ac. | C |
| Solid Waste C (Development) - Other solid waste | IHS Regular | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $5,300,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

## EXISTING DEFICIENCIES:

**Water:** An update to the Nikolaevsk Utility Master Plan was completed in April 2007 which identified and evaluated several water system improvement alternatives. The community has two 320,000-gallon bolted, uninsulated water storage tanks that freeze to varying degrees in the winter. The surface water source comes from small creeks in the area that experience seasonal fluctuations resulting in low flow events. Approximately 32 homes in adjacent subdivisions are not provided with piped water.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

## PROPOSED FACILITIES:

**Water:** A groundwater source will be explored for use during periods when flow in the surface water creeks diminishes.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

## CIP Details:

**Related Projects:** Design of Nikolaevsk Multiuse facility comprising community center, washeteria and truck watering point.

**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER SOURCE - Ground water well, water source | IHS Regular | 1 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $231,115.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** The Water treatment automation in not functioning to its intended purposes. The water plant operater has to reset the system every 15.000 gallons to initiate the treatment process. The existing control system set point does not fills up the 320,000 gallons tanks to its capacity. Desing of Automation control replacement is close to completion. Awating for the construction funding.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Complete replacement of automation control system is required.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** Design of Nikolaevsk Multiuse facility comprising community center, washeteria and truck watering point.

**Ongoing Funding:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Treatment plant, rehabilitation, water treatment | IHS Regular | 1 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $398,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** The community has two 320,000-gallon bolted, uninsulated water storage tanks that freeze to varying degrees in the winter. Past records have indicated the water storage tank freeze up to 5 feet and more in winter conditions. The ice depth endangers the structural integrity of water storage tank during low flow conditions and will compromise the entire water system which significantly impacts to provide the safe drinking water to the community.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** The two 320,000-gallon water storage tanks will be insulated to protect from freezing.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** Design of Nikolaevsk Multiuse facility comprising community center, washeteria and truck watering point.

**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 640000 | Gal. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $569,600.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:** An update to the Nikolaevsk Utility Master Plan was completed in April 2007 which identified and evaluated several water system improvement alternatives. The community has two 320,000-gallon bolted, uninsulated water storage tanks that freeze to varying degrees in the winter. The surface water source comes from small creeks in the area that experience seasonal fluctuations resulting in low flow events. Approximately 32 homes in adjacent subdivisions are not provided with piped water.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Nikolaevsk, Inc. chose to pursue funding for Alternative #1, which includes the following project scope. The two 320,000-gallon water storage tanks will be insulated to protect from freezing. A backup groundwater source will be explored for use during periods when flow in the surface water creeks diminishes. A washeteria and watering point for individual and truck haul will be constructed for approximately 32 homes in adjacent subdivisions and the area on the road system around the community.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** Design of Nikolaevsk Multiuse facility comprising community center, washeteria and truck watering point.

**Ongoing Funding:** Requested but have not been granted supplemental funding for automation upgrades.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Watering point, water distribution | IHS Regular | 1 | Ea. | D |
| Water, Other - Washeteria, water portion, no foundation, water other | IHS Regular | 1200 | Sf. | D |
| WATER DISTRIBUTION - Foundation - conventional, local gravel, water distribution | IHS Regular | 1200 | Sf. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $932,652.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** An update to the Nikolaevsk Utility Master Plan was completed in April 2007 which identified and evaluated several water system improvement alternatives. The community has two 320,000-gallon bolted, uninsulated water storage tanks that freeze to varying degrees in the winter. The surface water source comes from small creeks in the area that experience seasonal fluctuations resulting in low flow events. Approximately 32 homes in adjacent subdivisions are not provided with piped water.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Serve 32 homes with 18,500 feet of 8-inch water main.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** Design of Nikolaevsk Multiuse facility comprising community center, washeteria and truck watering point.

**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 18500 | Ft. | A |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $3,379,210.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The current lift station has no enclosure therefore exposed to weather and other negative impacts.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Provide a lift station enclosure for the current lift station. Remove the existing settling tank ahead of the lift station. Enclose existing lift station and provide grinder pumps. See alternative #3, lift station #2 in the attached PER.

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 1 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $575,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** Two homes do not have an existing water source or indoor plumbing. 15 additional homes lack adequate indoor plumbing. Pipes are leaking, corroded, and clogged.

**Sewer:** Two homes do not have sewer service or indoor plumbing.15 additional homes lack adequate indoor plumbing. Pipes are leaking, corroded, and clogged.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Install two household wells for two separate homes and indoor plumbing. Upgrade in home plumbing for 15 additional homes.

**Sewer:** Connect two homes to the existing gravity sewer collection system and provide indoor plumbing. Upgrade in home plumbing for 15 additional homes.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Service lines, direct bury, sewer collection | IHS Regular | 200 | Ft. | A |
| WATER SOURCE - Ground water well, water source | IHS Regular | 2 | Ea. | A |
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 2 | Ea. | A |
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 2 | Ea. | A |
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 15 | Ea. | D |
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 15 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $530,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** The community currently uses an unpermitted, unfenced and unimproved open dump site. They lack a permitted Class III landfill.

**O & M:**

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Provide design and construction for a Class III permitted landfill. Provide burn unit.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 1 | Ac. | D |
| Solid Waste A (Plan) - Professional Services (engineering) | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $500,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The west loop has numerous leaks at failing butt fusion joints. Most of the west loop is undersized 3 inch diameter pipe installed in 1977.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Replacement of the west loop with 6 inch diameter arctic pipe water mains would provided improved fire flow and reduce leakage and water main repair frequency.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 5000 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,275,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** The existing landfill was constructed in 1995 with a 16-year design life. It has reached the end of its useful design life and needs to be replaced with a new solid waste facility. The existing landfill is also violating the 10,000-ft separation distance requirement from the airport.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Locate a site, design and construct a new landfill outside the 10,000-ft radius of the airport runway. According to the 2003 Master Plan there are three potential sites roughly 2 miles west of the townsite. Due to infrequent barging service up the Noatak River, the community and borough have secured funding for the implementation of a winter fuel delivery system to the community using winter roads known as the Delong Mountain Transportation System (DMTS). A logical site for the new landfill would be along this corridor.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste A (Plan) - Management Plan, Solid Waste | IHS Regular | 1 | Ls. | D |
| Solid Waste C (Development) - General estimate, solid waste | IHS Regular | 1 | Ls. | D |
| Solid Waste C (Development) - Professional Services (engineering) | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,715,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The existing 500 gallon trailer mounted unit is aging and an inadequate size to properly agitate and loosen sludge in the two existing 10,000 gallon community septic tanks prior to pumping into the existing adjacent sludge disposal lagoon. A truck mounted sludge pumper could also provide sufficient volume and flow for flushing gravity sewer mains.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Provide a 1,500 gallon, four wheel drive, truck mounted sludge pumper to properly agitate and loosen sludge in the two existing 10,000 gallon community septic tanks prior to pumping sludge into the adjacent existing sludge disposal lagoon. The proposed sludge pumper is also large enough to provide sufficient volume and suction for cleaning gravity sewer mains.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Septic tank pumper, sewer treatment | IHS Regular | 1 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $225,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The three community primary wastewater lift stations failed during winter 1999/2000 due to a power surge and caused the majority of the wastewater collection system buried in permafrost soils to freeze. Approximately 85% of the residents including the school were forced on to a honey-bucket wastewater collection system for several months. Interim repairs have been completed at the lift stations and the sewer main and service lines were thawed. One lift station rehab has been funded under as a separate project and was construction in summer 2008. The other 2 lift stations remain in dire need of complete rehabilitation. Existing wet wells do not have buildings above them. Controls are outside mounted on power poles. Operation and maintenance during adverse weather is extremely difficult. This system experienced a devastating freeze-up in the winter of 2012 too.

**Solid Waste:** None

**O & M:** Operator training & equipment needed.

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Rehabilitate lift stations #1 and #3. Work will focus on improvements to the wet well structures including internal manifold piping, new pumps, level sensing equipment and vent pipe. A 12' X 16' building will be built over the wet well. The buildings will have two separate rooms; one room for all electrical components, and one room for wet well access.

**Solid Waste:** None

**O & M:** Operator training

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 2 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,300,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** Deficient house plumbing.

**Sewer:** Deficient house plumbing.

**Solid Waste:** None

**O & M:** Adaquate O&M

**PROPOSED FACILITIES:**

**Water:** Upgrade existing house plumbing for 12 homes.

**Sewer:** Upgrade existing house plumbing for 12 homes.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 12 | Ea. | D |
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 12 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $402,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** The existing solid waste site is nearly full of partially consolidated and uncovered trash. The landfill was constructed in 1995 with a 16-year design life (2011). The initial stockpile of cover material when the landfill was built is depleted. General cleanup and application of cover material is needed to extend the landfill useful life to the maximum extent possible and to reduce potential health hazard associated with uncovered trash.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** General cleanup and consolidation of uncovered trash at the existing landfill. Haul gravel & silty sand from the river borrow source to develop a stockpile of cover material at the existing landfill. Application of cover material at the existing landfill.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Other solid waste | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $309,600.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The existing water storage tank was built in 1984. The exterior 5 inch thick rigid insulation has holes in it on the west side. Buried overflow discharge piping has moved vertically causing the rubber Fernco coupling between the tank overflow piping and the buried piping to stretch. No Baffling was installed in the tank and because the level controls for the tank are nonfunctional, tank monitoring is performed manually. Furthermore, it has been determined that the existing WST does not meet minimum life safety stands of the current code, or the required elevation to sustain adequate pressures or volume to provide capacity for estimated future growth. The current tank has an 88,000 gallon capacity and the future grown requirements exceeds 220,000 gallons.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** The proposed water storage tank will be a bolted, steel tank and will include external wall and roof insulation. A 220,500 gallon tank has been recomened for the community in order to meet minimum life safty standards for the current code.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 220000 | Gal. | D |
| WATER DISTRIBUTION - Foundation - concrete foundation | IHS Regular | 1000 | Sf. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,180,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** Sewage Lift Station: Nondalton has a single lift station that was built the 1980s. The lift station is a deterioriting facility that has exceeded its assumed 20-year design life. The electrical contols are house in the same room as the wet well and are not explosion proof. Ventilation fans are no lnger functional.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Design and construct a new sewage lift station, sewer mains and services.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 1 | Ea. | E |
| SEWER COLLECTION - Mains, above ground, sewer collection | IHS Regular | 1 | Ft. | E |
| SEWER COLLECTION - Service lines, above ground, sewer collection | IHS Regular | 1 | Ft. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,060,500.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:**

**Sewer:** Existing PVC arctic pipe gravity, sewer collection lines and arctic manholes along lake road (main street) are subject to significant inflow and infiltration putting undue burden on community lift station and sewer lagoon. The lift station building is out-dated (constructed in 1984) and out of compliance with current electrical and fire codes. The existing lagoon is comprised of two cells with a total area of 1.4 acres (designed for 20-year life in 1984). For a community of this size, the minimum lagoon size should be approximately 4 acres to achieve treatment objectives. The undersized sewer lagoon overflows its berms dumping partially treated wastewater into the surrounding area. Several grab samples have been collected from the area surrounding the lagoon and have tested positive for fecal coliform. A home is located downgrade of the overflow area less than 500 feet from the lagoon.

**Solid Waste:**

**O & M:**

**PROPOSED FACILITIES:**

**Water:**

**Sewer:** This project proposes to replace the existing PVC arctic gravity sewer collection lines with 6" HDPE insulated arctic pipe along the lake road (Main Street). The existing arctic manholes are to be replaced with 4' diameter concrete manholes. A new code compliant lift station building is to be constructed over the existing wet well. The lift station will be reconstructed with new submersible pumps, rails and controls. The existing sewer lagoon will be expanded to adequately serve the population and extend the design life. In order to serve the new lagoon an estimated 1,000 LF of force main will be required and a 500 ft access road will need to be constructed under this project. This phase of the project is to be constructed in concert with the water system improvement project to begin in the spring of 2008. Sewer collection lines will be installed at the same time as the water distribution lines are being replaced to minimize the road closure time and thus impact on the community.

**Solid Waste:**

**O & M:**

**CIP Details:**

**Related Projects:**

**Ongoing Funding:** The community received funding in FY06 to replace all of the PVC water mains and service lines throughout the community. The water mains are buried in the same right-of-way as the sewer mains. If this project is funded, then replacement of both water and sewer mains at the same time will save in construction costs and disruption in service to the community. Construction on water mains is scheduled to begin in Spring 2008. Nondalton has also

received funding for a new water treatment plant and water storage tank. Construction on this project is scheduled to begin in Spring 2009.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 3 | Ac. | C |
| SEWER COLLECTION - Mains, direct bury, sewer collection | IHS Regular | 4000 | Ft. | C |
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 1 | Ea. | C |
| SEWER COLLECTION - Foundation - concrete foundation | IHS Regular | 192 | Sf. | C |
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 1000 | Ft. | C |
| Sewer, Other - Road, sewer other | IHS Regular | 500 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $4,769,412.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The force main connecting the community sewer facilities to the sewage lagoon has exceed it's design life.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Replace the existing forcemain.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 1 | Ft. | D |
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 1 | Ft. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $660,970.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The concrete base of several of the community's manholes have separated from the vertical culvert risers allowing possible contamination of surrounding. soils, as well as groundwater infiltration. All of the manholes are reported to have damage from frost jacking.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** This project will replace the existing sewer mains and services, manholes and cleanouts.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Mains, direct bury, sewer collection | IHS Regular | 1 | Ft. | E |
| SEWER COLLECTION - Service lines, direct bury, sewer collection | IHS Regular | 1 | Ft. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,378,774.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The existing water mains and services, manholes and cleanouts have passed their design life and should be replaced.

**Sewer:** The existing sewer mains and services, manholes and cleanouts have passed their design life and should be replaced.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** This project will replace the existing water mains and services, manholes and cleanouts.

**Sewer:** This project will replace the existing sewer mains and services, manholes and cleanouts.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 1 | Ft. | C |
| WATER DISTRIBUTION - Service lines, direct bury, water distribution | IHS Regular | 1 | Ft. | C |
| SEWER COLLECTION - Service lines, direct bury, sewer collection | IHS Regular | 1 | Ft. | C |
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 1 | Ft. | C |
| Sewer, Other - Other sewer | IHS Regular | 1 | Ls. | C |
| SEWER TREATMENT - Septic tank, community, sewer treatment | IHS Regular | 1 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,692,666.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** Noorvik faces the critical need for a new sewage lagoon due to inadequacies of the current lagoon system, which is currently out of regulatory compliance and has exhibited frequent discharge of untreated sewage across Noorvik's airport access road and into yards of multiple homes near the lagoon. The current system of 3 tundra ponds does not provide adequate detention time, hydraulic retention capacity, or surface organic loading capacity for adequate wastewater treatment. The pond system receives increasing volumes of wastewater as new homes are built and population grows. Approximately 45 homes and the elementary school have been connected in the last five years. Due to the increased flow, the outlet channel of the first pond is eroding and its level is dropping. The tundra ponds are less than 400 feet from a new High School and are very close to a new housing area. Coliform bacteria counts in the discharge from the existing lagoon system exceed allowable limits.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Construct a new 14 acre two-cell secondary treatment sewage lagoon with seasonal overland discharge to existing 22 acre tundra pond. Extend the forcemain to the new lagoon. Modify the pump and glycol systems for the two existing lift stations to accommodate the increased length of forcemain serving the new lagoon.

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** None

**Ongoing Funding:** A heat recovery project will be funded in 2013 by the State of Alaska through the Alaska Energy Authority. This project will provide recovered heat from the AVEC generator buildings to the water treatment plant.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Force mains, above ground, sewer collection | IHS Regular | 3500 | Ft. | C |
| SEWER COLLECTION - Lift station, sewer collection | IHS Regular | 2 | Ea. | C |
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 50000 | Ac. | C |

| | | | | |
|---|---|---|---|---|
| SEWER TREATMENT - Ocean outfall, sewer treatment | IHS Regular | 100 | Ft. | C |
| Sewer, Other - Other sewer | IHS Regular | 1 | Ls. | C |
| Sewer, Other - Other sewer | IHS Regular | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $4,674,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** The existing lagoon system is three tundra ponds in series. The ponds do not provide adequate detention time, hydraulic retention capacity, or surface organic load capacity for adequate wastewater treatment. There is a continuous discharge of untreated effluent that crosses the new airport access road and enters they yards of multiple residences. The pond system receives increasing volumes of wastewater as new subdivisions are built. Approximately 45 homes and the elementary school have been connected in the last five years. Due to the increased flow, the outlet channel of the first pond is eroding and its level is dropping. The tundra ponds are less than 400 feet from a new High School and are very close to a new housing area. A new lagoon is needed. Coliform bacteria counts in the discharge from the existing lagoon system exceed allowable limits.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Cap lagoon cell 1 and lagoon cell 2 using fill from local Hotham Peak gravel pit. Work includes access road construction, geotextile fabric, seeding and erosion control. This project requires prior completion of construction of a new lagoon system listed under a separate phase.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Sewer, Other - Other sewer | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $700,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The existing 25-year old "Loop 2" utilidor is failing due to difficulties in maintenance. The utilidor is routed under each home with little or no crawl space. There are shallow buried utilidor crossings at driveways where vehicle traffic has caused the utilidor to collapse and settle. In addition, colonies of rodents have been destroying the foam insulation to construct nests.

**Sewer:** Vacuum sewer mains are housed in the same utilidor as the water mains. See water system deficiency comments for details.

**Solid Waste:** None

**O & M:** Utility crews are highly trained. Unfortunately the section of utilidor to be replaced by this project is not accessible.

**PROPOSED FACILITIES:**

**Water:** Replace 2,600 linear feet of the existing Loop 2 water and sewer utilidor system (pressurized circulating water, vacuum sewer and hydronic heat trace) with a new aboveground utilidor routed along the back of each property being served. The total utilidor length would be reduced by this project by approximately 800 linear feet by allowing for removal of existing utilidor in an area that is double piped.

**Sewer:** Vacuum sewer mains are housed in the same utilidor as the water mains. See water system proposed facility comments for details.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Utilidors, above ground, sewer collection | IHS Regular | 2600 | Ft. | C |
| WATER DISTRIBUTION - Utilidors, above ground, water distribution | IHS Regular | 2600 | Ft. | C |
| Sewer, Other - Professional Services (engineering) | IHS Regular | 1 | Ls. | C |
| Water, Other - Professional Services (engineering) | IHS Regular | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $2,528,400.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** The existing solid waste landfill in Noorvik was only constructed with 3 of the 5 designed cells. The original project was never fully constructed and requires additional work to support community sanitation needs.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Expand and upgrade exisiting community landfill through access improvements, repairs to existing fencing, and development of two new landfill cells. This will add 12-15 years of life to existing facility.

**O & M:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 3 | Ac. | D |
| Solid Waste C (Development) - Road, solid waste | IHS Regular | 500 | Ft. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $850,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** A new well was drilled in 2003 after the major earthquake that rocked the Northway region. The well was never connected to the WTP. There is an excavation around the wellhead exposing the water source to surface contamination, potentially jeopardizing the entire aquifer.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** This project will connect the well to the WTP to be used as a backup in the event the main well fails. Damage to the primary well has occured as a result of the earthquake. Will provide well head protection to prevent contamination to the aquifer.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Water, Other - Other water | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $200,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** 15 homes have inoperable flush and haul facilities. The HUD homes were previously served by HUD at the time of construction to the community level of service.

**Sewer:** 15 homes have inoperable flush and haul facilities. The HUD homes were previously served by HUD at the time of construction to the community level of service.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Renovate the flush and haul units for 15 homes.

**Sewer:** Renovate the flush and haul units for 15 homes.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 15 | Ea. | C |
| WATER DISTRIBUTION - In-house plumbing, water distribution | IHS Regular | 15 | Ea. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,350,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Existing site requires fill material and fencing.

**O & M:** O&M organization requires training.

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Develop solid waste mgt plan. Upgrade landfill, secure permit.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 3 | Ac. | D |
| Solid Waste C (Development) - Equipment, solid waste | IHS Regular | 1 | Ls. | D |
| Solid Waste A (Plan) - Management Plan, Solid Waste | IHS Regular | 1 | Ls. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $564,075.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The water storage tank does not provide 7 days of storage.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** A new water storage tank will provide 10 days of storage. Due to spring flooding at the water supply, this is necessary.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 175000 | Gal. | D |
| WATER DISTRIBUTION - Foundation - conventional, local gravel, water distribution | IHS Regular | 1200 | Sf. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,488,404.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** A one mile water main from the lower town to the upper town, known as the P-Line, crosses a large permafrost area. The pipe is settling due to meling permafrost. Such a failure would take the entire water distribution system out of service. An geotechnical report is attached.

**Sewer:** The sewer main near the terminal manhole in the upper townsite is settling. This sewer was installed in the early 1990s.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Water system would be sound if the section affected by melting permafrost were replaced. About 500 feet of pipe should be reinstalled on a firmer foundation to avoid a complete failure of this line in less than 4 years.

**Sewer:** Sewer system would be sound if the section affected by melting permafrost were replaced.200 feet of sewer should be replace with proper bedding to avoid a catostrophic failure, in perhaps 3 or 4 years.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER COLLECTION - Mains, direct bury, sewer collection | IHS Regular | 200 | Ft. | C |
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 500 | Ft. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $210,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** 20 homes in lower townsite lack water service. Presently self-haul by homeowners from washerteria. Piped or haul system needed.

**Sewer:** 20 homes in lower townsite lack sewer service. Pit privies and honeybuckets used presently. Piped or haul system needed.

**Solid Waste:** Present dump is in a poor location and requires replacement.

**O & M:** Present O&M organization will benefit from training and equipment.

**PROPOSED FACILITIES:**

**Water:** Provide water service to 20 homes.

**Sewer:** Provide sewer service to 20 homes.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Service lines, direct bury, water distribution | IHS Regular | 5000 | Ft. | D |
| WATER DISTRIBUTION - Mains, direct bury, water distribution | IHS Regular | 7000 | Ft. | E |
| SEWER COLLECTION - Mains, direct bury, sewer collection | IHS Regular | 5000 | Ft. | D |
| SEWER COLLECTION - Service lines, direct bury, sewer collection | IHS Regular | 4500 | Ft. | E |
| SEWER COLLECTION - Force mains, direct bury, sewer collection | IHS Regular | 1000 | Ft. | E |
| SEWER COLLECTION - In-house plumbing, gravity, sewer collection | IHS Regular | 20 | Ea. | D |
| WATER SOURCE - Ground water well, water source | IHS Regular | 2 | Ea. | A |
| SEWER TREATMENT - Septic tank/drainfield, individual, sewer treatment | IHS Regular | 2 | Ea. | A |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $6,500,730.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Present site is poorly located and requires replacement.

**O & M:** Present organization will benefit from training and equipment.

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Develop site selection plan, select site, SW management plan, design and construct an approvable solid waste site, close old site if necessary.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste A (Plan) - Management Plan, Solid Waste | IHS Regular | 1 | Ls. | E |
| Solid Waste B (Closure) - Closure, solid waste site | IHS Regular | 1 | Ac. | E |
| SEWER COLLECTION - Force mains, above ground, sewer collection | IHS Regular | 1 | Ft. | E |
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 2 | Ac. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $716,040.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:** Water storage is inadequate. Salt water intrusion of the water source requires the raw water intake to be shut down for extended periods, requiring a greater amount of storage capacity, while the addition of the piped water and sewer system, with its increased heating needs, neccesitates additional WTP fuel storage.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Build additional 212,000 gallon water storage tank adjacent to the existing storage tank, including foundation and connection the WTP.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER DISTRIBUTION - Foundation - conventional, local gravel, water distribution | IHS Regular | 1 | Sf. | D |
| WATER DISTRIBUTION - Water storage tank, no foundation, water distribution | IHS Regular | 212000 | Gal. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $780,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** WTP foundation is failing which is compromising the structural integrity of the building. The southside of the WTP slopes to the corner; from the center of the building to the corner there is approximately a 14 inch height difference. All of the flexible connections on the pumps are well outside the specified tolerances; there is warping and movement of the interior walls visible where the wall meets the structural members. The foundation elevation differences have resulted in uneven flow across the conventional water treatment plant. The weirs have been adjusted to the maximum adjustments; this uneven flow through the two sides of the treatment unit is resulting in water quality challenges. The water treatment plant at times does not meet the MCL for TTHMs and there is a cross connection in the plant.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Complete an enginering assessment of the foundation and provide recommendations for repair. Repair the water treatment plant foundation. Address the TTHM issue and correct the cross connection.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:**

**Ongoing Funding:**

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| WATER TREATMENT - Foundation - conventional, local gravel, water treatment | IHS Regular | 4620 | Sf. | C |
| WATER TREATMENT - Treatment plant, rehabilitation, water treatment | IHS Regular | 1 | Ea. | B |
| Water, Other - Professional Services (engineering) | IHS Regular | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,046,100.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** The WTP lacks a generator. When power is lost, the circulation loops no longer circulate jeopardizing the entire water and sewer system. The water loops are run in utilidor with the vacuum sewer lines.

**Sewer:** The vacuum station lacks a generator. The sewer mains depend upon the circulating water loops for heat add and to prevent freezing.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Provide a generator for critical facility operations. Procurement of the generator for installation will occur as soon as funding is made available.

**Sewer:** Provide a generator for critical facility operations. Procurement of the generator for installation will occur as soon as funding is made available.

**Solid Waste:** None

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Sewer, Other - Other sewer | IHS Regular | 1 | Ls. | C |
| Water, Other - Other water | IHS Regular | 1 | Ls. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $250,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**

**EXISTING DEFICIENCIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Community uses an unfenced open dump to dispose of solid waste. They lack a permitted Class III landfill.

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** None

**Solid Waste:** Develop Solid Waste Management Plan, construct a Class III landfill with a burn unit. Close existing old open dump site.

**O & M:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste A (Plan) - Management Plan, Solid Waste | IHS Regular | 1 | Ls. | D |
| Solid Waste C (Development) - Development, solid waste site | IHS Regular | 3 | Ac. | D |
| Solid Waste B (Closure) - Closure, solid waste site | IHS Regular | 3 | Ac. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $1,612,000.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** The water plant/washeteria has exceeded its design life by 15 plus years and is failing, due to jacking piles and age.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** Construct a new water plant/washeteria.

**Sewer:** None

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** None

**Ongoing Funding:** None

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Water, Other - Washeteria, water portion, no foundation, water other | IHS Regular | 1280 | Sf. | C |
| WATER TREATMENT - Foundation - freeze back piles, water treatment | IHS Regular | 1280 | Sf. | C |
| WATER TREATMENT - Treatment plant, new, no foundation, water treatment | IHS Regular | 1280 | Sf. | C |
| Water, Other - Foundation - freeze back piles, water other | IHS Regular | 1280 | Sf. | C |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $5,648,640.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**DRAFT**

**EXISTING DEFICIENCIES:**

**Water:**

**Sewer:** Nunapitchuk has two flush tank & haul lagoons with failing dikes. The dikes are sinking into the tundra and need additional fill to increase their heights.

**Solid Waste:** None

**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None

**Sewer:** Add additional fill to the dikes of Nunapitchuk's two lagoons.

**Solid Waste:** None

**O & M:** None

**CIP Details:**

**Related Projects:** None.

**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| SEWER TREATMENT - Lagoon, borrow local material, sewer treatment | IHS Regular | 2 | Ac. | E |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $445,900.00**

**DISCLAIMER: Data displayed below is for informational purposes only.**
**Updates Completed By Engineer**

**EXISTING DEFICIENCIES:**

**Water:** None
**Sewer:** None
**Solid Waste:** Unapproved open dump site.
**O & M:** None

**PROPOSED FACILITIES:**

**Water:** None
**Sewer:** None
**Solid Waste:** Purchase and install high tech burn barrel to reduce volume of solid waste stream.
**O & M:** None

**CIP Details:**

**Related Projects:** None.
**Ongoing Funding:** None.

COST ESTIMATE

| Scope Item | Funding Source | Quantity | Units | Health Impact Tier |
|---|---|---|---|---|
| Solid Waste C (Development) - Incinerator, solid waste | IHS Regular | 1 | Ea. | D |

Health Impact Tier:
A - First Service
B - Regulatory Compliance
C - Essential Upgrades
D - Beneficial Upgrades
E - Desired Upgrades

**Total Costs: $78,850.00**